

No single answer to the black-grass problem

Machinery supplier Opico staged a 'Beating Black-grass' seminar last month where cultivation options as well as the application of key grass weed herbicide Avadex (see page 12) were the focus.

Dominic Kilburn writes.



Opico managing director James Woolway and the Micro-Pro 16.

subsoiling was carried out "every few years" to alleviate soil pans.

"Subsoiling improves drainage and rooting but it mustn't be done too fast as it will mix the black-grass seed throughout the soil profile," he commented. "It's key not to mix the soil profile and, if anything, it's better to go wider, rather than faster," he advised.

"Set the subsoiler wings by changing the angle to lift less, with minimum 'soil boil', so you can go a little faster if needed but leave the soil down there," he added.

Creating the right mix

According to Mr Woolway, the fact that the popularity of time and cost saving combination cultivators – featuring subsoiler tines and discs – coincided with the increase in black-grass populations over the past decade, was probably not a coincidence. "With these implements we are turning the soil upside down through the whole soil profile and, in a bad black-grass situation, it can proliferate the problem.

"It's much better to subsoil slowly and then chop and mix the surface afterwards with a set of discs, rather than tines, moving the soil shallow and to a similar depth, and leaving the black-grass seeds deeper than 6cm," Mr Woolway said.

"Discs move the soil to the same depth and the flatter the discs the better, rather than the traditional concave type which, with their weight, can smear the soil as they turn."

He suggested that in preparing stale seedbeds, growers needed to think about how they would prepare a normal seedbed and focus on creating seed-to-soil contact. "Consolidation is often under utilised and so the more discs per metre the better, to increase the amount of consolidated soil across the full width.

"Finally, it's better to roll, rather than press, to make the black-grass seed germinate," he added.

Chemical options

With the renewed interest and use

of grass weed herbicide Avadex (tri-alleate) in growers' autumn weed control strategies over the past few seasons, Mr Woolway highlighted that care was needed in its application for the product to be a success.

"Avadex is difficult to apply, particularly as granules vary in size making it impossible to 'throw' them," he suggested, adding that the product is also very light and easily affected by wind.

"With Avadex we are trying to create an even and accurate layer of chemical across the soil otherwise there simply won't be the black-grass control, and therefore a specific applicator is required rather than using a Variocast, or similar machine, if we want Avadex to work properly," he emphasised.

Opico's Micro-Pro 16 is the company's latest kit specifically developed to apply Avadex. A 12m machine featuring 16 metering rollers for 16 outlets, it has additional applications including slug pellets, grass seed, clover, stubble turnips and fodder rape (more details on the Micro-Pro 16 can be found on page 43 of this magazine).

Mr Woolway pointed out that it's not possible to apply Avadex accurately using a mushroom-type distribution head as the product is too light at low rates and, especially so, if the 'seed' pipes are all of different lengths.

The fundamental starting point of any machine designed to apply Avadex, he said, was the number of outlets – and the more the better. The less distance between outlets (maximum 0.75cm) means a more reliable and robust pattern, with less effect from the wind, he suggested.

"We set out to produce the most accurate micro-granular applicator on the market," continued Mr Woolway, who said that SCS Spreader & Sprayer Testing has been involved with its development from the start. "Using NSTS micro-granular applicator protocols the Micro-Pro achieved +/- 3% in outlet tests while the NSTS acceptable pass rate is as much as +/- 10%. If you work to +/- 10% then an intended application rate of 13.5kg/ha could be as much as 16.6kg/ha applied, resulting in poor or variable control of black-grass and an illegal over application," he warned.

Likewise, in metering tests across the full width of the machine, the Micro-Pro measured +/- 1%, well

Micro-Pro options

Mounted boomed Micro-Pro

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Micro-Pro with fitting kit for 12.3m He-Va King Roller

- Loading platform with steps and applicator with 400-litre hopper, radar, electronic metering and 16 outlets

Micro-Pro for fitting to customers own machine

within the NSTS' +/- 5% target rate at 15kg/ha.

"We don't think that the NSTS protocols demand enough accuracy and they don't look at, or check, spread patterns.

"SCS helped us to develop our own spread pattern test and analysis shows that the Micro-Pro 12m has a coefficient of variation of 5.36%. We feel that it's very important to have this kind of accuracy when you are dealing with expensive chemical and we are the only people to do this to a machine before it goes out of the door," said Mr Woolway.

Farm development

Rob Golland, farm manager at the 1,000ha (2,470-acre) Vine House Farm, Deeping St Nicholas, near Spalding applies Avadex to wheat in the autumn with an applicator kit off the back of his 12m He-Va King Rollers.

Working with Opico, he converted the farm's Variocast Air 16 (seeder)

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Opico says that it is the only company that does a patterning spread test of its Avadex applicators prior to them being purchased by growers. Corrugated sheets are laid on the floor across the full 12m working width and the application spread is measured every 7.5cm.

All farming cultivation systems have problems with black-grass, pointed out Opico managing director James Woolway at his company's recent seminar entitled 'Beating Black-grass'. However he said that a combination of different cultivation techniques and the ability to be able to vary the approach to cultivation when required is what is needed. "Our climate in the UK is very variable and so we have to vary our systems accordingly," he stressed.

Mr Woolway suggested that ploughing was a short-term fix when it came to controlling black-grass and that other systems must be employed during the years in-between.

Min-till, he said, could provide control of black-grass but it can result in deeper cultivations which are too deep for effective black-grass control, while direct drill and strip-till systems often need the plough, or shallow cultivation systems to help control the black-grass.

He questioned whether drainage maintenance was a priority on farms currently, given the relentless spread of black-grass, and if moleing and

Black-grass cultivation success at a glance

- Subsoil with low disturbance tines
- Create shallow stale seedbeds with discs
- Roll after

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using a hopper, metering unit and outlet system which was further developed and became the basis of Opico's Micro-Pro applicator.

"We started using Avadex again two years ago as black-grass was an increasing problem on the farm and this system, off the back of the rolls straight after drilling, has worked well," he reported.

Mr Golland said that speed of application is typically 10kph, governed by the speed rolls are operated at, as is the number of outlets (16 at 0.75m spacing) across the rolls' 12m width.

"It's a very light product to apply and so the more outlets the better in terms of maintaining the accuracy of application," he commented.

As well as proving to be a success in applying Avadex, the same kit is also commandeered for slug pellet applications during the autumn. "The problems that are occurring with pellet active metaldehyde and water courses is a big concern, but this system offers us far more accuracy and reassurance than a spinning disc applicator," concluded Mr Golland.

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Black-grass battle

Just to stand still and keep black-grass populations at the current level requires as much as 97 per cent control each season. That is the harsh reality facing farmers in the UK in their battle against black-grass, stated ProCam's head of crop production Nick Myers (right), speaking at the event.

He highlighted several challenges: legislation continuing to restrict available products; no new major black-grass herbicides coming through; reduced efficacy and variable performance of residual herbicides (mainly influenced by differences in seasonal weather); ever-more stacks of herbicides required for control and involving complicated mixes and sequences; a general decline in performance of post-emergence contact material; and the increasing spread of resistance across the country.

"Growers have all this to contend with never mind trying to run down black-grass populations

still further," he pointed out.

Mr Myers referred to the company's '4Cast' survey data (2000-2014) which confirmed that average herbicide spend had risen on wheat farms in line with the increased use of non-inversion cultivation techniques. "The average spend on herbicides in 2014 was £110/ha which is unsustainable at current wheat prices. Non-inversion techniques do mean a greater spend on herbicides, but it's understandable in terms of trying to reduce establishment costs," he explained.

He encouraged growers to fully embrace cultivation control and herbicide use.

"Most black-grass won't germinate below 6cm and, once ploughed down, seed does degrade quickly - usually within three years - so having ploughed, and it must be good inversion, just work the surface for the next three years.

"False or stale seedbeds are

not the total answer, particularly if they are not left long enough for the black-grass to germinate properly. However they must be consolidated, like a seedbed, if good germination is to be achieved," he commented.

Mr Myers emphasised the point that delayed drilling in the autumn is a tool that can be used to improve black-grass control and reduce herbicide costs, but yield tends to drop. "Residual chemistry goes on better in cool and moist conditions when drilling is delayed although we know that later sowing can be unreliable.

"That said, there is relatively little difference in yield when drilling between mid-September and mid-October," he added.

"Spring cropping is a major benefit to black-grass control and our 4Cast for average crop gross margins in 2014 shows very little difference between winter and spring wheat, with input spend on the latter being much less," he highlighted, pointing out that the gross margin for spring barley was not too far behind.



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Herts contractor

Attending the Opico event was Hertfordshire-based contractor and County Council tenant farmer Diccon Burman (right) who built his own 24m Avadex applicator and, last season, applied product to over 2,700ha (6,660 acres).

He said that accuracy of operation is key and, with 0.5m spaced outlets



along the 24m booms on his machine, and enough airflow to deliver sufficient pressure to each of the seed pipes, he is getting the required spreading coefficient from his machine when operating at 12kph.

"Having seen Opico's new machine, it's clear that it is delivering the required accuracy and they've taken the time to develop it properly, however too many growers

are applying Avadex with machines that are too old. They are OK if they are set up properly and conditions are ideal, but on the one hand they are using the latest GPS-controlled sprayers to apply other chemicals on the farm, and then on the other they resort to a 30-year old machine for Avadex."

Mr Burman, whose business is based near Hitchin and operates across north Hertfordshire, Bedfordshire and Cambridgeshire,

said that the majority of his Avadex application work is on autumn wheat although he is seeing an increase in use in spring barley where there are fewer options to control black-grass.

"More growers are using Avadex now because they have found themselves with a bad black-grass problem, but why not use it to stop the problem before it happens?"

"Avadex also has an effect on some broad-leaved weeds, which is an additional bonus," he added. ■

All about Avadex

Avadex (tri-allate) is not the silver bullet that everyone wants for black-grass control but used as part of a full programme of herbicides, in addition to cultural control methods, it can play a key part in a successful strategy in controlling the weed.

That is the opinion of Gowan UK & Ireland technical manager Robert Plaice, talking at the 'Beating Black-grass' seminar hosted by machinery manufacturer and supplier, Opico.

With a resurgence in its use over the past few seasons, Mr Plaice pointed out that farms where black-grass is already an established problem will probably already be including Avadex in their weed control strategies as part of the herbicide 'stack', however he also suggested that there will be many growers who feel "on top of the black-grass job", but they feel they need to continue to reduce populations. "This group should be considering the use of Avadex as well as those also seeing heavy brome and ryegrass infestations as an increasing problem," he commented.

According to Mr Plaice, with no proven cases of resistance, as well as offering a different mode of action to most other herbicides and almost no following crop or varietal restrictions,

tri-allate should be the base of any strategy where reducing black-grass seed return, and dealing with resistance, are the priorities in wheat crops.

"Its use in winter barley is also important where there are limited alternatives," he added.

How to apply it

Applying Avadex on the back of a drill is popular as it saves a pass but speeds should be appropriate for the equipment to maintain the integrity of the application, he advised, pointing out that the applicator must be set up correctly for the speed the operator is intending to drill at.

Mr Plaice also suggested that where the drill's soil wake moves, granules could be taken down towards the wheat seed. "This depends upon the drill but drilling depth needs to be maintained at 4cm to separate the wheat seed and the Avadex," he said.

Granules going on to a nicely rolled surface off the back of a set of rolls provides a good, even application, but Mr Plaice pointed out that conditions can dictate that not every field on a farm is rolled. In addition, applicator operators should be PA4G qualified to carry out this

type of operation.

"A dedicated applicator gives the most flexibility and purchases can always be shared by neighbouring farms, while they also have the additional advantage of being able to sow grass and cover crop seed, and apply granules and slug pellets to a clearly defined width," added Mr Plaice.

When to use it

The advice from Gowan is that black-grass control in winter cereals needs to be based around a tri-allate and herbicide tank mix (and never tri-allate alone), and ideally at pre-emergence of the crop, however there have been questions as to when is the best time to use Avadex in relation to other herbicides in the stack. "There have been a lot of trials with all combinations of its use; ie Avadex followed by herbicide tank mixes, herbicides tank mixes followed by Avadex and both applied at the same time," explained Mr Plaice. "We haven't seen any difference in either crop effects or black-grass control levels with those options and, in reality, in most seasons it's best to get on as soon as possible after rolling, and so individual circumstances will dictate the order," he said.

Avadex Do's and Don'ts

DO:

- Check application pipework, deflector plates and calibration regularly
- Keep deflector plates clean and at the right angle as they dictate the evenness of application
- Avadex can be applied in frost, light snow or rain, provided the deflector plates can be cleaned
- Seal part-used bags otherwise unused product will absorb moisture
- Make sure drilling depth for wheat is 4cm

DON'T:

- Apply when the top 5–8cm of soil is bone dry
- Apply to very cloddy seedbeds as granules can bounce off resulting in uneven coverage
- Consolidate after application as this can push the granules down towards wheat seed
- Apply pre-em to direct drilled crops – post-em only
- Apply to soils with more than 10 per cent organic matter
- Apply in strong winds as this might disrupt the spread pattern
- Sow oat or grass crops within one year of Avadex use